



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,850	12/08/2003	Hyung-Bok Lee	P56980	9275
7590 09/09/2005 Robert E. Bushnell Suite 300 1522 K Street, N.W. Washington, DC 20005			EXAMINER BOATENG, ALEXIS ASIEDUA	
			ART UNIT 2838	PAPER NUMBER

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/728,850

Applicant(s)

LEE ET AL.

Examiner

Alexis Boateng

Art Unit

2838

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 1, 2, 3, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozu (U.S. 6,822,420).

**Regarding claim 1**, Kozu discloses wherein a pouch-type secondary battery unit, comprising:

a first secondary battery cell comprising a first secondary battery body and a first case (figure 20, item 102), the first secondary battery body being disposed inside the first case, the first secondary battery cell further comprising a first positive electrode terminal and a first negative electrode terminal perforating out from said first case (figure 21, items 113 and 114);

a second secondary battery cell comprising a second secondary battery body and a second case (figure 20, item 102), the second secondary battery body being disposed within the second case, the second secondary battery cell further comprising a second positive electrode terminal and a second negative electrode terminal perforating out from said second case (figure 21, item 113 and 114);

and a safety circuit board disposed in an external void within said battery unit (figure 20, item 130), said external void being defined as being between the first and second secondary battery cells, the safety circuit being electrically

connected to the first and second positive electrode terminals and to the first and second negative electrode terminals (figure 17 items 11 and 12).

**Regarding claim 2**, Kozu discloses wherein the first and second cases each comprise: a case body having a space for accommodating one of the first and the second battery bodies (figure 20 item 102); and case cover coupled to the case body to seal the battery body contained within the case body (figures 1A and 1B item 2).

**Regarding claim 3**, Kozu discloses wherein each case body comprises a flanged portion (figure 21 item 111), the positive and negative electrode terminals perforating the respective case at the flanged portion of the case body (figure 21 item 113 and 114).

**Regarding claim 17**, Kozu discloses wherein a plurality of secondary cells (figure 20, item 102), each battery cell comprising a battery body disposed in a sealed case (figure 20, item 102), each battery cell further comprising a pair of electrode terminals of opposite electrical polarity electrically connected to said battery body and perforating said case (figure 21, items 113 and 114); and a safety circuit board (figure 5 item 5) being electrically connected to the terminals of each of said plurality of battery cells (figure 5 item 20), said safety device being disposed in such a way as to not add size to the battery unit (figure 20, item 130).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4, 6, 7, 8, 10, 12, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozu (U.S. 6,822,42) in view of Hong (U.S. 6,423,449).

**Regarding claim 4 and 8**, Kozu does not disclose wherein the first battery cell and the second battery cell are positioned so that the first positive electrode terminal is disposed near the second positive electrode terminal and the first negative terminal is disposed near the second negative electrode terminal. Hong discloses in figure 5 item 700 wherein when the electrodes are folded, the first positive electrode terminal is disposed near the second positive electrode terminal and the first negative terminal is disposed near the second terminal. At the time of invention, it would have been obvious to a person of ordinary skill in the art to allow the first positive electrode terminal to be disposed near the second positive terminal and first negative electrode terminal to be disposed near the second negative terminal so that the like terminals can form one complete terminal when the electrode is folded so as to conserve space and increase voltage within the electrodes.

**Regarding claims 6, and 10,** Kozu discloses a pouch-type secondary battery unit, comprising:

a case comprising a case body having a plurality of spaces, each one of said plurality of spaces being spaced apart from each other by a predetermined distance, (figure 1B items 1) said case further comprising a case cover extending from a side of the case body and coupled with the case body to seal all the plurality of spaces, (figure 1B items 2a and 2b;

a plurality of battery cells, each battery cell having a battery body and two electrode terminals, (figures 2A thru 2C) each battery body being disposed in respective ones of said plurality of spaces (figure 20 items 102), each of said battery bodies having positive and negative electrode terminals extending outward through the case (figure 21 items 113 and 114, respectively);

and a safety circuit board, disposed in a external void designed by the folding of the case cover (figure 20 item 130), the safety circuit board being connected to each of said positive electrode terminals and the negative electrode terminals of each of said plurality of battery cells (figure 5 items 11, 12 and 3; column 8 lines 50 thru 58). Kozu does not disclose wherein the case cover is folded such that the spaces are stacked on top of each other. Hong discloses in figure 5 wherein the cover is folded such that the spaces, item 204, is stacked on top of each other, so that a more compact battery is produced. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the battery pack so that a plurality of batteries can be used without using a large amount of space.

**Regarding claim 7**, Kozu discloses in figure 21 items 113 and 114 wherein the case body comprises a flanged portion, the positive and negative electrode terminals extending through the flanged portion. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the battery case with a flanged portion so that a void is made to provide space for a safety circuit.

**Regarding claim 13**, Kozu does not disclose wherein each of said plurality of battery being comprised of electrode plates stacked on top of each other. Hong discloses in figure 5 wherein each of said plurality of battery being comprised of electrode plates are stacked on top of each other. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the electrode plates so they are stacked on top of each other so that battery unit space is conserved, but power is increased.

**Regarding claim 20**, Kozu discloses wherein said safety circuit board being one of or both of a positive temperature coefficient device, column 9 lines 66 thru column 10 line 3, and safety vent figure 20 item 130. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a positive temperature coefficient device used for overcurrent protection and a safety valve used to release internal pressure, so the battery is not damaged

4. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozu (U.S. 6,822,42) in view of Hong (U.S. 6,423,449) in further view of Spillman (6,635,381).

**Regarding claims 5 and 9**, neither Kuzo nor Hong disclose wherein each of the battery bodies being helically wound positive and negative. Spillman discloses in figure 7 wherein the battery body is helically wound. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the batteries to be helically wound so that the battery can easily save space and minimize bulkiness.

5. Claims 11, 14 – 16, 18, and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozu (U.S. 6,822,42) in view Hong (U.S. 6,423,449) as applied to claim 10 above and in further view of Kawakami (U.S. 5,582,931).

**Regarding claim 11**, Neither Kozu nor Hong do not disclose wherein said cover of said case being folded onto itself so that each of said plurality of battery of bodies are stacked on top of each other. Kawakami discloses in figure 2A and in figure 3 wherein the case is folded onto itself. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the battery so that it folds onto itself so that space is conserved, but power is increased.

**Regarding claim 12**, Kozu discloses wherein said case body having a flanged portion (figure 21 items 113 and 114), said safety device being disposed between two separate sections of said flanged portion (figure 20 item 103). Neither Kozu nor Hong disclose when said case is folded onto itself so that each of said plurality of battery bodies are stacked on top of each other. Kawakami discloses in figures 3 wherein the case body is folded onto itself so as to make the battery pack more compact and save space. At the time of invention, it would have been



obvious to a person of ordinary skill in the art to design the battery case so that it folds onto itself so that space is conserved, while power is maintained.

**Regarding claim 14,** Kozu does not disclose wherein each of said plurality of battery bodies being comprised of electrode plates being helically wound.

Kawakami discloses in figure 4 wherein the electrode plates are helically wound.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the electrode plates so that they are helically wound so that space is conserved while power is maximized.

**Regarding claim 15,** Kozu does not disclose wherein each of said plurality of battery bodies being electrically connected to each other in seriatim. Kawakami discloses in figure 1B and in column 3 lines 18 thru 20 wherein the battery bodies are electrically connected to each of other in seriatim. At the time of invention, it would have been obvious to a person of ordinary skill in the art to connect the electrodes in series so that cell voltage is enhanced.

**Regarding claim 16 and 19,** Kozu does not disclose wherein each of said plurality of battery bodies being electrically connected to each other in parallel. Kawakami discloses in figure 1A and in column 3 lines 14 thru 18 wherein the battery bodies are electrically connected to each of other in parallel. At the time of invention, it would have been obvious to a person of ordinary skill in the art to connect the electrodes in parallel so that cell current is enhanced.

**Regarding claim 18,** Kozu does not disclose wherein each of said plurality of secondary battery cells being stacked on top of each other, each of said cases having a flanged portion protruding outward from the battery body, wherein a

void is formed between flanged portions of adjacent stacked battery cells, said void being external to said sealed case, said safety device being disposed within said void. Kawakami discloses in figure 7, figure 2A and in figure 3 wherein the case has flanged portions and is folded onto itself. Kawakami further discloses in figure 9B wherein the safety device, safety valve item 812, is disposed within the void of the sealed case. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the battery to have flanged portions so that battery is made to be stackable and so that the safety device is easily placed near the battery so it can protect the battery from damage.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB



**MICHAEL SHERRY**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**